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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/007,575      | 11/09/2001  | Rongjia Tao          | TUN-568US           | 3439             |

7590 03/25/2004

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| EXAMINER |
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MAYEKAR, KISHOR

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1753

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                   |  |
|------------------------------|--------------------------------------|-----------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/007,575 | <b>Applicant(s)</b><br>TAO ET AL. |  |
|                              | <b>Examiner</b><br>Kishor Mayekar    | <b>Art Unit</b><br>1753           |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) 14-29 is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-13 is/are rejected.

7) ☐ Claim(s) \_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1/02 & 3/03.

4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13, drawn to a method for increasing the yield shear stress of an electrorheological fluid, classified in class 204, subclass 164.
  - II. Claims 14-29, drawn to an apparatus thereof, classified in class 422, subclass 186.04.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Groups I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to for any electrochemical process.

Art Unit: 1753

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Attorney Robert Anderson on March 18, 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

*Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by TANG et al. ("Structure-Enhanced Yield Stress of Magnetorheological Fluids", Journal of Applied Physics, Vol. 87, No.5, 1 March 2000, pps. 2634-2638) in light of either PATON (6,297,159) or CHEN et al. ("Laser Diffraction determination Of

the Crystalline Structure of an Electrorheological Fluid", Physical Review Letters, Vol. 68, No. 16, 20 April 1992, pps. 2555-2558), all the references cited by Applicant. TANG discloses a study on enhancing the yield stress of magnetorheological fluids which comprises the steps of applying a magnetic field to the fluid and thereafter compressing the fluid to thicken the fluid and increase the yield shear stress (see the second and third paragraphs in the right column of page 2634 and Fig. 4). TANG also discloses in the abstract and in the second paragraph of page 2638 that the method is applicable for electrorheological (ER) fluids. As such, TANG contemplates that the method is applicable to the ER fluids. PATON discloses in col. 2, lines 26-31 that after an external field is applied to ER or MR fluids, the fluid forms into chains of particles. CHEN discloses the same (first column in the left column of page 2555).

9. Claims 2, 3 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over TANG et al. in light of either PATON '159 or CHEN et al. The differences between the reference as applied above and the instant claims are the limitations in each of the instant claims.

As to the subject matter of either claim 2 or 3, although the reference is virtually silent in regards to the direction of the direction of applying the pressure, however since PATON shows an orientation where the ER fluid is oriented between the upper and lower plates (see Fig. 8) while CHEN shows a different orientation where the ER fluid is oriented between two upright electrodes (see Fig. 2(a)), it appears that TANG's method to lead one of ordinary skill in the art at the time the invention was made towards the applied direction of the compression pressure.

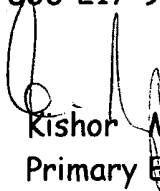
As to the subject matters of claims 7-9, TANG shows that the "yield stress depends upon the applied magnetic fields and the compression pressure" last line in the first paragraph of the right column of page 2635).

As to the subject matters of claim 10-13, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the reference's teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art. *In re Aller* 105 USPQ 233; *In re Boesch* 205 USPQ 215.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kishor Mayekar  
Primary Examiner  
Art Unit 1753